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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/456,371	12/08/1999	HEINRICH BOLLMANN	12010	6395

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BASF CORPORATION  
LEGAL DEPARTMENT  
1609 BIDDLE AVENUE  
WYANDOTTE, MI 48192

EXAMINER

ROCHE, LEANNA M

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 11/29/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/456,371

Applicant(s)

BOLLMANN ET AL.

Examiner

Leanna Roche

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 September 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,9,14 and 19-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,9,14 and 19-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Applicant's amendments filed on September 7, 2001 have been entered and carefully considered. Claims 1, 9, 14, and 19-29 are pending in this application. The amendment to claim 14 filed in Paper No. 7 is sufficient to overcome the objection under 37 CFR 1.75 in Paper No. 5.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 19, 21-23, 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Jourquin et al (USPN 4150206).

Jourquin discloses a microcellular elastomeric polyurethane core with an integral thermoplastic polyurethane skin. The integral polyurethane skin forms during molding or injection-molding of the elastomeric core. Therefore, Jourquin reads on a thermoplastic polyurethane molding with a microcellular polyurethane elastomer on its surface. Depending on the use of the composite, the elastomeric layer may be bonded to the outer or inner surface of the polyurethane skin layer. Because the polyurethane skin is an integral skin, the polyurethane skin is inherently chemically bonded to the surface of the microcellular polyurethane elastomeric layer.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 9, 14 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krech et al. (CA 02240464) in view of Hoppe et al. (USPN 4447486) substantially as set forth in Paper No. 5.

The obvious combination of Krech and Hoppe is set forth on Page 3 of Paper No. 5. Hoppe is directed to the sealing of an open-cell polyurethane elastomer using a thin, nonporous skin of polyurethane. Therefore, Hoppe generally discloses the application of **any** thin, nonporous polyurethane layer to a microcellular polyurethane elastomer layer, including the application of a thermoplastic polyurethane skin layer (See claim 1). It is known in the art that thermoplastic polyurethanes have greater flexibility than thermoset polyurethanes. Therefore, it would have been obvious to the skilled artisan at the time this invention was made to have used a thermoplastic polyurethane layer to seal the open-cell polyurethane layer of Hoppe motivated by the desire to produce a composite, which has increased flexibility yet still resists penetration by water and dirt.

With regard to claim 27, the damping element of Hoppe is comprised of a flexible elastomer layer and a rigid polyurethane skin layer. With regard to Claim 28, both the microcellular elastomeric polyurethane of Krech and the sealing layer of Hoppe consist of polyurethane.

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With regard to claim 29, neither Krech nor Hoppe specifically disclose chemical bonds between the isocyanate groups in the polyurethane sealing layer and isocyanate-reactive groups in the microcellular polyurethane elastomers. However, because there is no indication of any adhesive layer between the cellular polyurethane elastomer layer and the nonporous polyurethane skin layer, chemical bonding must occur between the two layers. Therefore, because the microcellular polyurethane elastomer of Krech is substantially identical to Applicant's claimed microcellular polyurethane, and because Hoppe may be comprised of a thermoplastic polyurethane substantially identical to Applicant's claimed thermoplastic polyurethane, it is believed by the examiner that the polyurethane composite of Krech in view of Hoppe would inherently possess bonds between the isocyanate groups of each layer as claimed by Applicant. See *In re Best*, 195 USPQ 433 footnote 4 (CCPA 1977).

6. Claims 19, 20, 22-24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoppe et al. (USPN 4447486) in view of Krech et al. (CA 02240464).

Hoppe is directed to a damping element comprised of an open-cell polyurethane elastomer sealed with a thin, nonporous skin of polyurethane. Although Hoppe does not specifically state that the nonporous skin be comprised of thermoplastic polyurethane, Hoppe generally discloses the application of **any** thin, nonporous polyurethane layer to a microcellular polyurethane elastomer layer. This would include the application of a thermoplastic polyurethane skin layer (See claim 1). It would have been obvious to the skilled artisan at the time this invention was made to have used a thermoplastic polyurethane layer to seal the open-cell polyurethane layer of Hoppe

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motivated by the desire to produce a composite, which has increased flexibility yet still resists penetration by water and dirt.

Hoppe does not specifically state that the open-cell polyurethane elastomer layer be comprised of microcellular elastomeric polyurethane with Applicant's claimed property ranges. Krech, however, is directed to a damping element comprised of a microcellular polyurethane elastomer with a density, tensile strength, elongation at break and tear propagation resistance within the ranges claimed by Applicant. It would have been obvious to a person of ordinary skill in the art at the time of this invention to combine the teachings of Hoppe and Krech, motivated by the desire to produce a damping element which not only resists penetration of water, dirt and dust (Hoppe, Column 1 lines 54-58), but which also displays improved damping properties and excellent volume compressibility (Krech, Column 1 lines 20-24).

With regard to claims 22 and 23, depending on the function of the composite, the elastomeric layer may be considered to be bonded to the outer or inner surface of the polyurethane skin layer.

With regard to claims 24 and 26, neither Krech nor Hoppe specifically disclose chemical bonds between the isocyanate groups in the polyurethane sealing layer and isocyanate-reactive groups in the microcellular polyurethane elastomers. However, because there is no indication of any adhesive layer between the cellular polyurethane elastomer layer and the nonporous polyurethane skin layer, chemical bonding must occur between the two layers. Therefore, because the microcellular polyurethane elastomer of Krech is substantially identical to Applicant's claimed microcellular

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polyurethane, and because Hoppe may be comprised of a thermoplastic polyurethane substantially identical to Applicant's claimed thermoplastic polyurethane, it is believed by the examiner that the polyurethane composite of Hoppe in view of Krech would inherently possess bonds between the isocyanate groups of each layer as claimed by Applicant. See *In re Best*, 195 USPQ 433 footnote 4 (CCPA 1977).

7. Claims 1, 9, 14 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jourquin et al. (USPN 4150206) in view of Krech et al. (USPN 6063824).

Jourquin is directed to a microcellular elastomeric polyurethane having an integral thermoplastic polyurethane skin. The density of the microcellular elastomeric polyurethane of Jourquin falls within applicant's claimed range, but Jourquin does not disclose the specific ranges of tensile strength, elongation at break, tear propagation resistance and rebound resilience of the microcellular elastomeric polyurethane core layer claimed by Applicant. However, Krech discloses a density, tensile strength, elongation at break, and tear propagation resistance within Applicant's claimed ranges. Because both Jourquin and Krech are directed to materials which may be used as damping elements, it would have been obvious to the skilled artisan at the time this invention was made to have used the microcellular polyurethane of Krech as the core material of Jourquin, motivated by the desire to produce a polyurethane composite material with improved damping properties and excellent volume compressibility.

Both Jourquin and Krech disclose the use of their polyurethane materials as a damping elements and shock absorbers. The microcellular layer of Jourquin is flexible

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and the polyurethane skin of Jourquin may be rigid. Both the composite of Jourquin and the microcellular material of Krech consist of polyurethane.

Jourquin does not specifically disclose that the bonding between the microcellular elastomeric core and the polyurethane skin is comprised of chemical bonds between isocyanate groups in said thermoplastic polyurethane and isocyanate-reactive groups in the microcellular core. Jourquin does disclose that the polyurethane skin is integral with the microcellular core. Therefore, the skin and core are inherently chemically bonded. Because the microcellular polyurethane elastomer of Krech is substantially identical to Applicant's claimed microcellular polyurethane, and because Hoppe may be comprised of a thermoplastic polyurethane substantially identical to Applicant's claimed thermoplastic polyurethane, it is believed by the examiner that the polyurethane composite of Hoppe in view of Krech would inherently possess bonds between the isocyanate groups of each layer as claimed by Applicant. See *In re Best*, 195 USPQ 433 footnote 4 (CCPA 1977).

8. Claims 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jourquin et al (USPN 4150206) as applied to claim 19 above, and further in view of Krech et al. (USPN 6063824).

Jourquin does not disclose a density within Applicant's claimed range, but does not disclose the specific ranges of tensile strength, elongation at break, tear propagation resistance and rebound resilience of the microcellular elastomeric polyurethane core layer claimed by Applicant. However, Krech discloses a density, tensile strength, elongation at break, and tear propagation resistance within Applicant's claimed ranges.



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Because both Jourquin and Krech are directed to materials which may be used as damping elements, it would have been obvious to the skilled artisan at the time this invention was made to have used the microcellular polyurethane of Krech as the core material of Jourquin, motivated by the desire to produce a polyurethane composite material with improved damping properties and excellent volume compressibility.

Jourquin does not specifically disclose that the bonding between the microcellular elastomeric core and the polyurethane skin is comprised of chemical bonds between isocyanate groups in said thermoplastic polyurethane and isocyanate-reactive groups in the microcellular core. Jourquin does disclose that the polyurethane skin is integral with the microcellular core. Therefore, the skin and core are inherently chemically bonded. Because the microcellular polyurethane elastomer of Krech is substantially identical to Applicant's claimed microcellular polyurethane, and because Hoppe may be comprised of a thermoplastic polyurethane substantially identical to Applicant's claimed thermoplastic polyurethane, it is believed by the examiner that the polyurethane composite of Hoppe in view of Krech would inherently possess bonds between the isocyanate groups of each layer as claimed by Applicant. See *In re Best*, 195 USPQ 433 footnote 4 (CCPA 1977).

### ***Response to Arguments***

9. Applicant's arguments filed September 7, 2001 have been fully considered but they are not persuasive.

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10. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Krech and Hoppe are both specifically directed to the production of damping elements in the motor vehicle industry. Krech does not disclose the use of an outer thermoplastic polyurethane barrier layer. Hoppe, however, discloses the use of a polyurethane skin layer to seal the surface of a cellular elastomer in order to prevent the penetration of water, dirt and dust into the cellular elastomer. Therefore, Hoppe sets forth the motivation to provide a barrier layer on the surface of the cellular elastomeric polyurethane of Krech.

11. Although Hoppe does not specifically suggest using a thermoplastic polyurethane skin, Hoppe generally claims the application of **any** thin, nonporous polyurethane to the surface of a cellular elastomer. This would read on the application of a thermoplastic polyurethane skin to a cellular elastomer. Additionally, it would have been obvious to the skilled artisan at the time of the invention to use a thermoplastic polyurethane skin because it is known in the art that thermoplastic polyurethanes have greater flexibility than thermoset polyurethanes. Therefore, it would have been obvious to the skilled artisan at the time this invention was made to have used a thermoplastic polyurethane

layer to seal the open-cell polyurethane layer of Hoppe motivated by the desire to produce a composite, which has increased flexibility yet still resists penetration by water and dirt.

12. Applicant's arguments with respect to the specific nature of adhesion between the microcellular elastomeric polyurethane layer and the thermoplastic polyurethane layer have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leanna Roche whose telephone number is 703-308-6549. The examiner can normally be reached on Monday through Friday from 8:30 am to 6:00 pm (with alternate Mondays off).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on 703-308-1261. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

*Leanna Roche*

Imr

November 19, 2001

  
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